

## **India's Solar Waste & Recycling Market**

**Prelims:** Current events of national and international importance | Economy

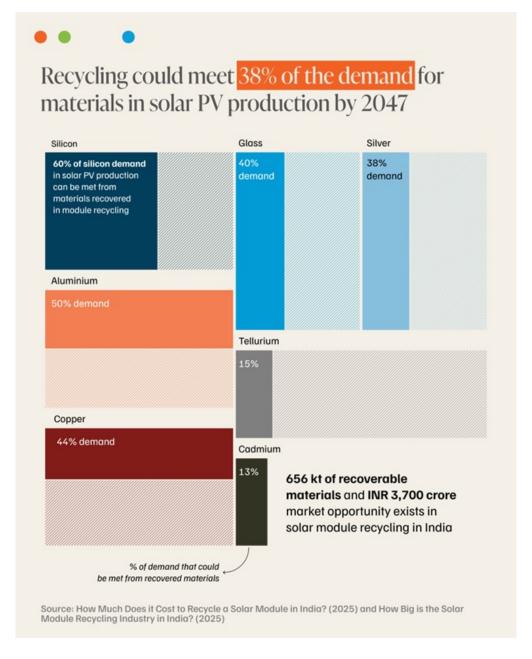
## Why in news?

India is projected to generate about 11 million tonnes of solar waste by 2047, as per the study by a Delhi-based think tank Council on Energy, Environment and Water (CEEW).

CEEW study - Provide India's <u>1</u><sup>st</sup> comprehensive blueprint for building a domestic solar recycling ecosystem that supports both clean energy and manufacturing self-reliance.

## Findings of the study

- **Projected Solar Waste** About 11 million tonnes, mostly from crystalline-silicon solar modules by 2047.
- Reason Rapid solar capacity expansion under India's renewable energy targets.
- Infrastructure & Investment Needs Managing the waste would require nearly 300 recycling plants across the country with an estimated investment of around Rs. 4,200 crore.
- Market Opportunity Recovering & reusing materials from discarded solar panels could create a <u>Rs. 3,700-crore market opportunity by</u> 2047.
- Materials recovery potential Silicon, copper, aluminium, silver recovered from solar waste could meet <u>38% of the sector's</u> <u>manufacturing inputs</u> in 2047 & avoid 37 million tonnes of CO<sub>2</sub> emissions by replacing virgin materials.



- **Economic Opportunity** By recycling solar waste, recover valuable minerals, boost supply chains, and create jobs and supports India's sustainable and strong development.
- Main expenses Buying back waste modules about Rs. 600 per panel (nearly 2/3<sup>rd</sup> of the total cost), followed by processing, collection and disposal costs.
- Recommendations To make recycling profitable
  - Panels should be priced below Rs. 330,
  - Recyclers support through EPR (Extended Producer Responsibility) certificate trading for collection and recovery under the E-Waste (Management) Rules, 2022,
  - tax incentives
  - R&D for better recovery of silicon and silver.
  - $_{\circ}$  Innovation designing panels for easier material recovery &

improving material purity

- Creating new value chains around critical minerals
- Circular Solar Taskforce to align policy, finance and industry action.
- $_{\circ}$  Centralized Solar Inventory to track where solar waste is building up.

## References

- 1. The Hindu | India's Solar waste projection
- 2. CEEW | India's solar boom create a Rs. 3,700 Crore market in 2047

